DOCUMENT RESUME

ED 194 178 JC 800 622

AUTHOR Froh, Robert: Muraki, Eiji
TITLE Modification and Discontinuance of Mastery Learning Strategies.
PUB DATE Oct 80
NOTE 50p.: Paper presented at the Mid-Western Educational Research Association Conference (Toledo, OH, October 15-17, 1980). Not available in paper copy due to the marginal reproducibility of the original document.

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Community Colleges: *Learning Theories: *Mastery Learning: Student Evaluation: Summative Evaluation: *Teacher Attitudes: *Teacher Characteristics: Teacher Workshops: Teaching Styles: Two Year Colleges

ABSTRACT

Interviews with 40 instructors who had attended mastery learning workshops were conducted by the Chicago City Colleges to determine whether and why the instructors had modified and/or discontinued the mastery learning strategies and to correlate the degree of mastery learning implementation with teacher characteristics and attitudes. The instructors were asked about: (1) their college or high school teaching experience; (2) their attitudes toward 28 statements reflecting various teaching and learning principles: (3) the degree to which teachers actually implemented the four components of mastery learning (i.e., planning course objectives and a summative evaluation, designing a formative evaluation, planning corrective learning procedures, and implementing mastery learning tactics): (4) the modifications made during class: (5) the complexity of mastery learning: (6) the advantages and disadvantages of mastery learning: (7) the helpfulness of mastery learning workshops and other support services: and (8) the degree to which mastery learning was seen as a positive agent in helping students "learn to learn." About 33% of the instructors had modified the standard strategies, generally because of the time required to prepare them. The study report examines the correlations between the implementation of mastery learning and instructor characteristics and attitudes. The survey instrument is included. (JP)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED194178

MODIFICATION AND DISCONTINUANCE OF MASTERY LEARNING STRATEGIES

Robert Froh
Eiji Muraki

Chicago City-Wide College

Paper presented at
Mid-western Educational Research Association.
Conference at Toledo, OHIO, Oct.15-17, 1980

BEST COPY AVAILABLE

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Eiji Muraki

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

JC 800 622

ABSTRACT

Since 1976 standard process of Mastery Learning strategies has been introduced to approximately 200 instructors at Chicago City College by the Mastery Learning Project at Chicago City Colleges. After the experience of a workshop, some of them modified the standard strategies or quit using them. This study was planned to determine the reasons why they modified or quit using the strategies, and how they modified the strategies.

About one third of instructors had somewhat modified the standard strategies. The main reason is that it is time-consuming to prepare the strategies. Several other reasons are related to specific problems of Chicago community colleges, such as low academic achievement of students and tutors. In terms of teacher characteristics, some significant relationships between high school teaching experience and the degree of implementation of Mastery Learning were found, which appear to indicate that the more high school teaching experience the more likely a teacher will be to continue using Mastery Learning. We also found that a teacher's perception of students' achievement was critical to their adoption of Mastery Learning. The more teachers perceive that students are able to learn how-to-learn and/or to develop academic self-confidence under Mastery Learning the less they are inclined to modify or discontinue use of Mastery Learning components.

SUMMARY

The instructional program of Mastery Learning has been implemented at Chicago City Colleges since 1969 to improve students' achievement and reduce students' attrition rate. At the initial stage, Mastery Learning strategies were implemented by isolated instructors. Since 1976 several workshops and seminars have been administered by the Mastery Learning Project within the Center for Instructional and Staff Development. Approximately 200 instructors have been introduced to Mastery Learning strategies by these projects. After the experience of a workshop, some of them have modified the standard Mastery Learning strategies. A few quit using Mastery Learning strategies. This particular study seeks to determine the reasons why teachers modify or discontinue using Mastery Learning strategies, and how they modify the strategies.

For this study, a sample of teachers (n=40) who have attended a Mastery Leanring workshop has been interviewed by R. Froh and E. Muraki, who also constructed the interview format. Standard Mastery Learning strategies are classified into four components: Planning of Course Objectives and Summative Evaluation, Planning Formative Evaluation, Planning Corrective Procedures, and Implementation. At the same time, the data for the characteristics of instructors were collected. About 25 to 37% of instructors indicated they had somewhat modified the components of standard strategies. The major reason for these modifications is that it is time-consuming to construct the table of specification, to prepare parallel formative tests, or to give formative test and feedback. For the component of Planning Corrective Procedures, not many teachers develop their own methods or utilize alternative resources. Some reported that the only corrective they had used was tutoring done by the managers. Many teachers expressed a concern related to this position. Some said that difficulty in coping with an unsatisfactory manager had influenced some teachers to quit using Mastery Learning. Several other

modifications seem to be caused by specific problems related to community colleges. In terms of teacher characteristics, some significant relationships between high school teaching experience and the degree of implementation of Mastery Learning were found, which appear to indicate that the more high school teaching experience the more likely a teacher will be to continue using Mastery Learning. We also found that a teacher's perception of students' achievement was critical to their adoption of Mastery Learning. The more teachers perceive that students are able to learn how-to-learn and/or develop academic self-confidence under Mastery Learning the less they are inclined to modify or discontinue use of Mastery Learning components.

INTRODUCTION

The instructional program of Mastery Learning was initiated in the City Colleges of Chicago (CCC) - Daley, Kennedy-King, Loop, Malcolm X, Olive-Harvey, Truman, and Wright Colleges - to improve student achievement and reduce student attrition rates. The growth of Mastery Learning in the CCC has proceeded through four phases. Mastery Learning strategies were implemented by isolated instructors since 1969, and the first unified effort began in 1972. In 1972-1973 four faculty members worked together to implement Mastery Learning strategies in their classes at Olive-Harvey. In the academic years 1973-1974 and 1974-1975 sixteen new faculty members at Olive-Harvey, representing many different disciplines, joined the effort. Because of the positive results of this early work in terms of increased student achievement and reduced attrition rates, the Central Administration decided to attempt to institutionalize Mastery Learning by expanding the program to include all the colleges in the CCC.

Phase II began in the spring of 1976 when 80 CCC instructors attended a seminar conducted by Professor Benjamin S. Bloom at the University of Chicago. Instructors developed Mastery Learning strategies for nine subjects areas. During the 1976-1977 academic year the Mastery Learning Project involved 2,211 students in 77 classes taught by 37 instructors. Phase III began with a workshop in the summer of 1977 attended by 35 additional instructors. This workshop was administered by the Mastery Learning Project within the Center for Instructional and Staff Development. In Phase III, 27 new classromms and several new disciplines were added to the project. In the first three phases of the Mastery Learning Project it was established that Mastery classes did better than control classes taught by the same teacher in terms of higher academic grades (as a measure of achievement) and lower attrition rates.

Phase IV covers the 1978-1979 academic year. Currently 120 instructors teach 187 courses. The Mastery Learning Project staff now tries to answer two important questions: (1) Can Mastery Learning be institutionalized?; and (2) Will a sufficient number of teachers use Mastery Learning so that students can consistantly select courses using this technique?

Two primary concerns have been raised by the Mastery Learning Project in its efforts to institutionalize Mastery Learning. First of all, since Mastery Learning has been encouraged by the CCC approximately 200 instructors have been trained in Mastery Learning strategies. Currently the Project has 120 teachers registered who say they are using Mastery Learning in their classrooms. The Project would like to determine the status of the other 80 instructors who have been trained. Hopefully, knowledge of the reasons why these teachers are not using Mastery Learning and why these teachers have not registered with the Project would help the Project to make necessary adjustments to increase the percentage of teachers who go through training and then adopt Mastery Learning permanently. The second concern is that even though in all the research studies conducted to date on Mastery Learning in the CCC (Jones, Gordon, & Schechtman, 1979; Guskey & Monsaas, 1977; and Guida ., 1978), there is an overall pattern which shows Mastery Learning to be superior to non-Mastery techniques, there has been large variations among individual instructors in the degree to which reach the goals of increased achievement and reduced attrition. It is hypothesized that at least part of this variation is due to differences in the way various instructors implement the components of Mastery Learning strategies. Therefore, there is considerable interest in determining the nature and degree of variation among teachers in the way they implement Mastery Learning.

In this study variation in the ways teachers implement

Mastery Learning and variation in the number of teachers who continue to use Mastery Learning are considered relative degrees of the same issue. The reasons teachers provide for modifications to the strategies will provide many spcifics concerning why some teachers discontinue using Mastery Learning all together. This study will investigate how teachers have implemented Mastery Learning strategies in their classrooms and determine the reason why teachers adopt, modify, or discontinue using different parts of the Mastery Learning Model.

For this study a sample of teachers who have attended a Mastery Learning workshop has been interviewed. Interviewing has been chosen as the best way to obtain the most objective and detailed information. Interviewing was also chosen as the method for gathering information in the hopes of establishing stronger rapport between the Project and teachers through personal contact and demonstrated interest by the Project. It had been anticipated that the sample of teachers would contain only a few teachers who have discontinued use of Mastery Learning because of : 1) lack of current interest and thus unwillingness to take the time necessary for an interview; and 2) teachers may not be registered with the Project who have gone through a workshop yet may still be using Mastery Learning to some degree.

METHOD

Sample

The sample of instructors interviewed (n=40) was selected randomly from a list of instructors who have attended a Mastery Learning workshop. However, this randomness was biased by two different factors. Sampled instructors could be systematically different from non-sampled instructors in their availability to students. Also, certain campuses have had more influence upon the analysis and conclusion.

In relation to the first factor of availability to students, instructors were contacted during reported office hours. Instructors that the interviewers were unable to contact may be less available to students since they were not available during their office hours. In relation to the second factor of representativeness of schools, some schools have a significantly larger population of instructors who have attended a Mastery Learning workshop. Therefore, they have a higher relative percentage of instructors in the sample. Also, interviewers' schedules prevented equal coverage of each of the campuses. One campus, Wright College, is not presented at all in these interviews.

Instrumentation

The interview format, attached in the Appendix, was constructed by R.Froh and E.Muraki. The interview format consisted of three major parts: 1) View on Teaching and Learning Principles; 2) Implementation of Mastery Learning Strategies; and 3) Supports and Constraints to Implementation.

View on Teaching and Learning Principles. Several sources were consulted to define statements representing various "Views on Teaching and Learning Principles" used in the interview. Skinner (1971), Gagne (1970), and Bruner (1960) in addition to the Mastery Learning research were used to define statements representing a continuum of views from educational philosophy and learning theory. The intent of this section was to determine if teachers who implement Mastery Learning hold similar sets of teaching and learning principles, and to determine the relationship between the strength of belief in particular statements and other variables measured in the interview. The statements used in the interview are listed below:

Most people can learn anything at any stage.

Too much guidance in instruction can destroy a student's ability to deduce important concepts in a subject.

Before we can teach adequately we must assess a student's prerequisite skills.

One of the best way to teach a concept is by helping students to "discover" the concept through inquiry.

The primary emphasis of instruction should be teaching students how to learn a particular subject rather than what they should learn.

Students need specific feedback continuously in the learning process.

Learning is best accomplished by the teacher rewarding, shaping, and modeling behavior.

Good teaching helps a student to move from a need for extrinsic reward to depend on intrinsic rewards.

Testsdo not really show how much a student has learned.

Testing can be used as an aid to students in learning.

Experience is an essential part of school learning.

Providing remedial instruction is the responsibility of every teacher in every class.

Organizing instruction using objectives that reflect a strong sequential approach stifles creativity.

Students can learn as much from their peers as from their teacher.

Effective teaching requires the use of varied instructional materials and methods to meet individual needs.

No matter what the teacher does a number of students will not perform as well as others in the class.

Good instruction should include setting clear and attainable goals for students.

Strong sequantial instruction is appropriate for most courses.

Grading should be used as a motivator throughout a course.

Students must learn how to apply the subject in different situations before they have mastered the material.

It is important to develop behavioral objectives for every specific skill and knowledge a teacher wants to teach.

One of the most important things to do in teaching is to provide an overall view of the content and let the students fill in with facts they know or learn.

Teachers were instructed to rate each item using the five-point Likert scale from Strongly Agree(5) Strongly Disagree(1). In analysis the number on the scale was used as the score for each statement.

Implementation of Mastery Learning. The Mastery Learning literature was consulted to validate definitions and concepts that were used in the interview process. Since the Mastery Learning philosophy and teaching strategies currently used in the CCC has been influenced by several different sources of literature and professional educators (particularly Professor Benjamin S. Bloom, and Mastery Learning Project Directors Mr.Emmet Jones and Dr.Rocco Caponigri), the literature review was conducted to delineated Mastery Learning philosophy and strategies considered essential and consistent across many different situations. Mastery Learning as a standard strategy has been, thus, divided into four components. These components are defined below. The first three components - Planning of Course Objectives and Summative Evaluation, Planning of Formative Evaluation, and Planning Corrective Learning Procedures - are preconditions for the fourth component called "Implementation". Each component is further divided into parts:

I. "Planning of Course Objectives and Summative Evaluation" includes;
   A. An outline of the content of the course is developed and listed vertically down the side of a page.
   B. Four-to-six major objectives are listed horizontally across the top of a page representing at least the first four levels of the Taxonomy of Educational Objectives: Knowledge, Comprehension, Application, and Analysis.
   C. Some of cells from the table of specifications are chosen for writing items.
   D. Test items are written for each of the sampled cells and judged for content validity by a peer.

II. "Planning of Formative Evaluation" includes;
   A. The course is divided into small teachable units (approximately one or two weeks in length).
   B. The hierarchy of learning tasks is listed horizontally across the top of a page for each unit to include: 1) knowledge of terms, 2) knowledge

of facts, 3) knowledge of rules and principles, 4) skills in using processes and procedures, 5) ability to make translations, and 6) ability to make applications.

C. The formative test "table of specification" is completed.
   1. The appropriate columns of each learning task are filled in which subject matter elements and details.
   2. Connecting lines are drawn where appropriate to represent subject matter elements at one learning task level that are prerequisite for elements at a more complex learning task level.

D. Test items are written for each cell containing subject-matter elements for each unit.

III. "Planning Corrective Learning Procedures" include;
   A. Varied methods and materials are developed from which the student can choose to master the content of incorrect items.
   B. An alternate but parallel form of the formative test is developed for students to take after completion of corrective learning procedures.

IV. "Implementation" includes;
   A. An orientation is conducted to acquaint students with Mastery Learning concepts, developing the belief that they can learn.
   B. A cycle of group-based instruction, formative evaluation, individual corrective learning procedures as needed, and confirmation of mastery are repeated for each unit of the course.
   C. The final examination is given and the grade is based on previously established criterion scores for mastery of the course.

Teachers were instructed to rate each component or elements of each component using three Likert-type scales. The first scale was developed to assess the degree to which each teacher uses a specific component or element of each component in his planning or implementation of Mastery Learning. Rogers' five perceived characteristics - relative advantage, compativility, complexity, observability, and triability- were found to be particularly useful references in defining Mastery Learning as an educational innovation in the CCC (Rogers, 1962). These characteristics of innovations are assumed to affect the diffusion rate among members in an organization. Rogers indicated the critical variable is the perception of these characteristics rather than

the actuality of their occurence. For the interview two of these characteristics were adopted to develop the second and third scales: 1) relative advantage - the degree to which an innovation is perceived as better than the idea it supersedes; and 2) complexity - the degree to which an innovation is perceived as difficult to understand or use. These three scales contain five points. The range of the first scale is from Always(5) to Never(1). The range of the second scale is from "Much better than previous method" (5) to "Much worse than previous method"(1). The range of the third scale is from "Extermely easy to use"(5) to "Extremely difficult to use"(1). Again, in analysis the number on the scale was used as a score for a teacher on each particular scale for each component.

In addition to use of the scales, we sought to determine which elements of each component teachers modified and how different components were modified. Each teacher was scored 0 if they did not modify a particular element of component, and 1 if they did. Teachers' description of modifications were also summarized for each component.

We also sought to measure teacher's perceptions of the impact of Mastery Learning on two measures of student competence: "learning-to-learn" and "acdemic self-confidence." Teachers were asked to rate the following statements using the strongly disagree- strongly agree Likert scale.

> Use of mastery learning strategies has helped my students to learn "learn-how-to-learn"
>
> Use of mastery learning strategies has helped my students to develop confidence in their ability to learn.

Supports and Constraints to Implementation. The third part of the interview process was Supports and Constraints to Implementation. The purpose of this section was to determine teachers' perceptions of the location and degree of support. The following locations of support were assessed:

Current mastery learning project staff
Other teachers in the department
Other teachers in the community college
Department chairperson
Other administrators
Mastery Learning coordinators *
Mastery Learning managers **

* Mastery Learning coordinators are the appointed personnel by Project to coordinate between Project and other instructors who implement Mastery Learning in a specific college.

** Mastery Learning mangers are Comrehensive Employment Training Act (CETA) personnel utilized as para-professionals by Mastery Learning teachers. The managers tutor students, guide students through pre-established alternative corrective learning experiences, and free the teacher from some clerical work.

Teachers were instructed to rate each item using the five-point Likert scale from "Very Supportive of My Efforts"(5) to "Very Constraining to My Efforts"(1). In analysis, the number on the scale was used as the score for a techer on each statement. In addition to this rating of locations of support one open ended question was asked:

> Do you have any specific suggestions for how the community college and the mastery learning project can be more supportive of your efforts in mastery learning?

Teachers' responses to this question were summarized.

In addition to the three major sections of the interview, data was sought as how many teaching experience teachers had, whether the teacher planned to continue using Mastery Learning, which workshop teacher had attended, and any general comments teachers had related to Mastery Learning or the interview process. The general comments are summarized in the Presentation of Results.

Each interview took about thirty minutes on the average. All data were presented and gathered through verbal interaction with the exception that the definitions

of the components and the scales were presented on index cards for easier clarification and reference, and to save interview time.

Data Analysis

The data were analyzed in two ways. First, the nature and degree of variations in implementation of Mastery Learning has been analyzed by use of frequency distributions that include average responses, standard deviations, and various response categories, and by summary of teachers' responses to the open question "How did you modify this part of the component?". The second, data were analyzed using correlation, factor analysis, and frequency distributions to support or reject the hypothses suggesting the relationship of several variables to teachers' decisions to modify or discontinue use of Mastery Learning strategies. These variables as assessed in the interview were teachers' views on teaching and learning, teaching experience, perceived relative advantage, perceived complexity, perceived result, and perceived environmental support. In addtion to these two paths of analysis, teachers' responses to the open ended question "Do you have any other concerns comments, or questions about Mastery Learning strategies or this interview?"have been summarized and presented in the Appendix. The findings are presented in Part I according to the first analysis and in Part II according to the second analysis.

RESULTS

Part I

The nature and degree of variations in the implementation of Mastery Learning will be described first. Figure I summarizes data from the interview. Each element of

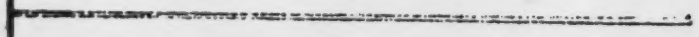
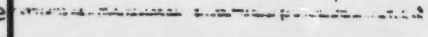
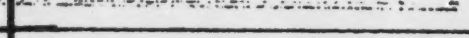
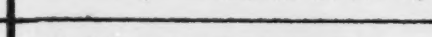
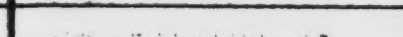
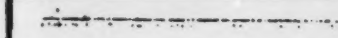
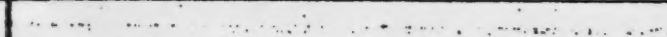
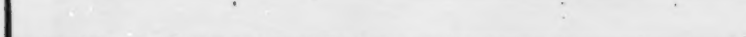
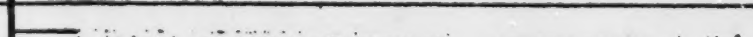
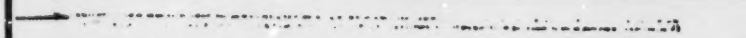
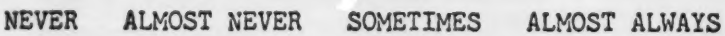
each component of Mastery Learning is listed vertically down the column of the figure. Under "Degree Used in Mastery learning" is a representation of the mean responses for each element of each component on the never-to-always scale listed at the bottom of the figure. The column "Mean/Standard Deviation (S.D.)" lists the mean and standard deviation for each element on the never-to-always scale. The column "Percent of Teachers Who Modified" is at the right. This column indicates the percent of teachers interviewed who said they modified a particular element of a component.

.....

Figure I should be inserted here.

.....

Planning of Course Objectives and Summative Evaluation. Figure I shows that teachers only <u>sometimes</u> use Bloom's taxonomy o objectives. The three elements - Taxonomy of Objectives(IB), Sampled Cells(IC), and Test Items(ID) reflect this. In all of these elements teachers, on the average, said they only <u>sometimes</u> use these elements, and 36.6% of the teachers interviewed indicate that they modify the Taxonomy of Objectives. In response to the open ended question, "How did you modify this part of the component?", approximately 50% of the teachers said they think the taxonomy is valuable to course planning and useful in explaing the course to students. However, they said they use the Taxonomy informally rather than systematically. About 15% of the teachers commented that they do not think in terms of the Taxonomy at all. Some teachers commented that it takes too much time to develop. A few others said they do not use application or analysis objectives in their teaching.

	DEGREE USED IN MASTERY LEARNING	MEAN / S.D.	PERCENT OF TEACHERS WHO MODIFIED
I. Summative Evaluation A. Course Outline		4.21 1.26	7.3%
B. Taxonomy Objective		3.15 1.72	36.6%
C. Sampled Cells		3.23 1.59	17.1%
D. Test Items		2.83 1.55	17.1%
II. Formative Evaluation A. Teachable Units		4.45 1.01	14.6%
B. Hierarchy of Tasks		3.08 1.62	34.1%
C1. Select Cells		2.92 1.60	19.5%
C2. Prerequisites		2.47 1.68	19.5%
D. Test Items		3.89 1.39	12.2%
III Corrective Learning A. Varied method		3.97 1.30	19.5%
B. Alternate Test		4.61 1.03	14.6%
IV. Implementation A. Orientation		4.61 0.89	4.9%
B. Cycle		4.61 0.89	7.3%
C. Test		4.26 1.35	29.3%

NEVER ALMOST NEVER SOMETIMES ALMOST ALWAYS ALWAYS

Planning of Formative Evaluation. Within the Planning of the Formative Evaluation component, Figure I shows that teachers only sometimes use the hierarchy of learning tasks. Both elements - Hierarchy(IIB) and Selected (IIC) reflect this. About 34% of the teachers interviewed indicated that they modify the Hierarchy. One teacher said he has modified the taxonomy to two levels: "know and do." Others modify the taxonomy by excluding "skills in principles and procedures" or "ability to make translations." A couple of teachers commented that they cover the application type of tasks by including a project or paper in their course assignments.

The current suggestion by the Project is to present units of about two weeks in length. The 14.6% of the teachers said that they modify the length of the unit and pacing of materials. These teachers said that they arrange the length of unit by length of chapter in the text. Others said they make the units longer to reduce class time for formative evaluation. Some modify the unit length to respond to the skills of students in the particular class. Many teachers try to shorten the formative evaluation in concern for the amount of class time demanded for testing. A few teachers commented that because of poor reading skills and time required to correct tests, formative tests usually take up a whole class period. A few teachers said that after the formative test is completed the rest of the class is usually not useful because of students' inattentiveness. As a result some teachers try to test outside of formal class time by giving take-home tests or making other arrangements. Finally, one additional concern was raised by a few teachers who said making good parallel forms of a formative test is difficult and time consuming.

Planning Corrective Learning Procedures. In general, teachers reported that they almost always use varied methods for correctives. A few teachers said they work with students on a one-to-one basis. Some use text references for missed test questions. Some reported that the only corrective

they use is tutoring done largely by the managers. Only a few teachers said they use PLATO, a computer assisted instructional program. A number of teachers said they are now expanding their altenatives for correctives. These include such things as filmstrips, teacher-developed tapes, an audio-tutorial lab available to all students in courses in a given department, written material on reserve in the library, teacher-authored text with correctives included, peer study groups, and use of alternative texts.

A few teachers commented that they review teaching methods when a majority of students miss particular formative test items. However, these teachers did express the concern that this makes the class slow down too much particularly for students doing will. Many teachers expressed difficulty in managing the process of corrective learning and formative evaluation retakes. A few expressed concern with the practibility of peer study groups because of difficulties in coordinating outside class time for meetings due to students' work schedules.

Implementation. Finally, within the "Implementation" component, Figure I shows that 29.3% of the teachers interviewed modify their use of summative tests as the sole source of grades(IVC,TEST). Many of the teachers said they give grades for class experiences other than the summative evaluations. These modifications include giving grades for lab experiences, papers, additional work, and/or special assignments. The concerns expressed were that giving grades for the summative tests alone creates too much anxiety, and that many other experiences are important and should be graded. Most teachers do not grade formative tests, but some release students from taking the summative examination if all formative test scores are in the A and B range.

In summary, we found some elements of components where teachers have modified extensively the degree to which they use the components in Mastery Learning. The three major changes were in the use of Bloom's Taxonomy, Learning Tasks, and using sources other than summative tests for grading. A major problem expressed is that of the need for good administrative process for the cycle of formative evaluation, and corrective learning followed by alternative evaluation.

Part II

In the part II, the summary of the findings about the characteristics of the teachers who modify or discontinue using Mastery Learning strategies are shown.

Teaching Experiences. Teachers were asked to indicate how many years teaching experience they have had at the college and/or high school levels. Their answers to this question were correlated with their responses for each element of each component on the never-to-always degree of implementation scale. It was of interest to explore whether more experienced teachers would have more commitment to their previously developed methods. If so, then this factor might impede their acceptance of an educational innovation. Table I gives the correlation coefficients and their respective probability levels between college and high school teaching experience and degree of implementation of elements of Mastery Learning components. The first number listed for each element is the correlation coefficient and the second number is the probability level. Table II gives the correlation coefficients and their respective probability levels between college and high school teaching experience and degree of implementation of each Mastery Learning component considered as a whole (the responses to each element on the never-to-always degree of implementation

scale were added within a component and then correlated with experience). This table gives the correlation coefficients between college and high school teaching experience and degree of implementation of Mastery Learning considered as a whole (the repsonses to each element on the never-to-always degree of implementation scale were added across all elements and all components and then correlated with experience). The correlation coefficients that are significant at the .10 level are italicized.

.....

Table I should be inserted here.

.....

.....

Table II should be inserted here.

.....

The data indicates that there is no significant relationship between years of college experience and degree of implementation of Mastery Learning with the exception of the teachable units element of the Planning of Formative Evaluation component. This correlation indicates that the more college teaching experience teachers have had the less inclined they are to divide their course into small teachable units fo approximately one or two weeks. This may indicate that they either teach longer units or do not divide their courses into units.

The data in Table I and II show some significant positive relationships between years of high school teaching experience and degree of implementation of Mastery Learning. There are significant postive relationships of high school experience and use of the Taxonomy of Objectives(IB), use of a Hierarcy of Learning Tasks(IIB,IIC1,IIC2), the Foramtive Evaluation component as a whole, and Mastery Learning as a whole.

TABLE 1

Correlation Coefficient Matrix of Teaching Experience and Degree of Implementation of Components

		College Teaching Experience	High School Experience
I.	Summative Evaluation		
	A. Course Outline	-.16 .336	.13 .418
	B. Taxonomy of Objectives	.04 .822	.30 .056
	C. Sampled Cells	-.07 .660	.16 .336
	D. Test Items	-.08 .635	.11 .515
II.	Formative Evaluation		
	A. Teachable units	-.44 .006	.27 .102
	B. Hierarchy of Learning Tasks	.11 .501	.43 .007
	C1. Select Cells	-.11 .058	.37 .024
	C2. Prerequisites	-.11 .519	.35 .034
	D. Test Items	.05 .752	.15 .378
III.	Corrective Learning		
	A. Varied Methods	.14 .404	.27 .106
	B. Alternate Test	-.23 .166	-.01 .929
IV.	Implementation		
	A. Orientation	-.27 .106	.19 .246
	B. Cycle	-.27 .106	.19 .246
	C. Test	-.08 .638	.01 .969

TABLE 11

Correlation Coefficient Matrix of Teaching Experience and Degree of Implementation of Components as a Whole

		College Teaching Experience	High School Teaching Experience
I.	Summative Evaluation	-.07 .071	.26 .115
II.	Formative Evaluation	-.09 .580	.40 .014
III.	Corrective Learning	-.03 .873	.17 .321
IV.	Implementation	-.22 .180	.27 .214
	Mastery Learning as a Whole	-.13 .426	.37 .023

These relationships appear to indicate that the more high school experience the more likely a teacher will be to continue to use these aspects of Mastery Learning. The data indicate that in general the hypothesis cannot be supported, but that there are some interesting relationships between high school teaching experience and degree of implementation of Mastery Learning.

Views on Teaching and Learning Principles. Our hypothesis is that, the more dissimilar teachers' views on teaching and learning principles are to those associated with Mastery Learning theory, the more likely they will be to modify or discontinue implementation of Mastery Learning strategies. To respond to this hypothesis, factor analysis was used to determine some major factors that surfaced in teachers' responses to "Views on Teaching and Learning Principles". Then, the factors were correlated with the degree of implementation of Mastery Learning components.

The factors that surfaced contain the following clusters of items.

Facotr 1 - Mastery Learning as a Philosophy of Teaching

Most people can learn anything at any stage.

The primary emphasis of instruction should be teaching students how to learn a particular subject rather than what they should learn.

Providing remedial instruction is the responsibility of every teacher in every class.

Students can learn as much from their peers as from their teacher.

Effective teaching requires the use of varied instructional materials and methods individual needs.

Students must learn how to apply the subject in different situations before they have mastered the material.

It is important to develop behavioral objectives for every specific skill and knowledge a teacher wants to teach.

Factor 2 - Technical Aspects of the Implementation of Mastery Learning

Students need specific feedback continuously in learning process

Learning is best accomplished by the teacher rewarding, shaping, and modeling behavior.

Testing can be used as an aid to students in learning.

Grades should be used as a motivator through a course.

It should be pointed out that these particular factors and the items correlated with these factors are the views of CCC teachers and do not necessary corresponded to the Mastery Learning literature or research.

Table III gives the correlation coefficients and their respective probability levels between the factors and the degree of implementation of the Mastery Learning components (responses to each element on never-to-always degree of implementation scale were adopted within a component and then correlated with each factor). Table III also gives the correlation coefficients between the two factors and the degree of implementation of Mastery Learning considered as a whole(responses to each element on the never-to-always degree of implementation scale were added across all elements and all components and then correlated with each other).

.....

Table III should be inserted here.

.....

The data show that all of the correlation coefficients are small and statistically insignificant at the .10 level. Thus, our hypothesis cannot be supported.

Relative Advantage and Complexity. Our hypotheses are: 1) The greater the degree that teachers perceive that Mastery Learning strategies are similar to or worse than their previous methods in their effect on student achievement the more likely they will be to modify or discontinue implementation of Mastery Learning strategies ; and 2)

TABLE III

CORRELATION COEFFICICANTS MATIX OF VIEW FACTORS AND DEGREE OF IMPLEMENTATION

		FACTOR 1	FACTOR 2
I	Summative Evaluation	.14 .403	-.12 .474
II	Formative Evaluation	.27 .103	-.08 .635
III	Corrective Learning	.09 .592	.08 .629
IV	Implementation	.16 .357	.21 .216
	Mastery Learning as a whole	.22 .194	-.03 .868

The greater the degree that teachers perceive Mastery Learning strategies are difficult to use, the more likely they will be to modify or discontinue implementation of Mastery Learning strategies.

To investigate these two hypotheses we used correlation analysis to relate teachers' ratings of relative advantage and complexity of different elements of the Mastery Learning components to the degree of implementation of these same elements. In general, teachers rate Mastery Learning components as relatively easy to use and as slightly better than previous methods. However, teachers' perceptions of Mastery Learning using these scales does not explain variation in the degree of implementation because there is so little variation in their perceptions. Therefore, we failed to test our hypotheses. Rogers and Shoemaker (1971) indicate these attributes of diffusion are best measured at the early stages of implementation when perceptions may vary more as people are just beginning to implement an innovation. Most of the teachers interviewed have been implementing Mastery Learning components from one to five years. It might be better to obtain measures of these attributes after teachers have used Mastery Learning once in one course.

Impact of Mastery Learning Strategies. Our hypothesis is that, the lesser the degree that teachers are able to perceive positve impact of Mastery Learning strategies on student achievement, the more likely they are to modify or discontinue implementation of Mastery Learning. Data for this hypothesis were obtained by correlation analysis relating teachers' ratings of the two measures of perception of student achievement, "learn how-to-learn" and "academic self-confidence", to teachers' responses to the degree of implementation. Teachers were asked to rate the following statements using the strongly disagree-to-strongly agree

scale.

Use fo Mastery Learning strategies has helped my students to "learn-how-to-learn."

Use of Mastery Learning strategies has helped my students to develop confidence in their ability to learn.

Table IV presents a correlatin coefficient matrix between the "learn-to-learn" and "academic self-confidence" and degree of implementation.

.....

Table IV should be inserted here.

.....

Again, the Mastery Learning components and their elements are listed vertically on the left. The first figure listed for each element is the correlation coefficient and the second figure is the probability level. The correlations that are significant at the .10 level are marked by "*".

The data considered as a whole support the hypothesis. The correlation between degree of implementation of Mastery Learning as a whole (teachers' responses to each element on the never-to-always degree of implementation scale were added across components) and perceptions of student achievement as a whole (responses on the strongly disagree-strongly agree scale to the two variables "learning-to-learn" and "academic self-confidence" were added together) is significantly at the .10 level. This indicates that teacher's perceptions of student achievement on these two variables is critical to their adoptions of Mastery Learning. The more teachers perceive that students are achieving on these variables the less they are inclined to modify or discontinue use of Mastery Learning component.

Supports and Constraints to Implementation. Our hypothesis is that, the less the support teachers perceive they obtain the school environment for their efforts, the more likely they will be to modify or discontinue implementation of Mastery Learning strategies. Correlation analysis between teachers'

TABLE IV

Degree of Implementation	Perceptions of Student Achievement	
	Learning-how-to-learn	Academic Self-Confidence
I. Summative Evaluation		
A. Course outline	.34 *.041	.15 .365
B. Taxonomy of Objectives	.34 *.036	.37 *.021
C. Sampled Cells	.28 *.095	.20 .220
D. Test Items	.43 *.007	.39 *.015
II. Formative Evaluation		
A. Teachable Units	-.10 .570	.25 .135
B. Hierachy of Tasks	.29 *.083	.22 .200
C1 Select Cells	.10 .558	.01 .952
C2 Prerequisites	.03 .854	-.02 .912
D. Test Item	.43 *.010	.06 .714
III. Corrective Learning		
A. Varied Methods	.08 .651	.12 .496
B. Alternate Test	.16 .356	.18 .295
IV. Implementation		
A. Orientation	.38 *.022	.23 .178
B. Cycle	.38 *.022	.23 .178
C. Test	.25 .139	.03 .837

	Perceptions of Student Achievement as a Whole
Mastery Learning as a Whole	.37 *.026

perceptions of locations of supports and degree of implementation was used to investigate this hypothesis. Also, teacher's response to the open ended question: "Do you have any specific suggestions for how the community college and the Mastery Learning Project can be more supportive of your efforts in Mastery Learning?" was used to further specify what kinds of support teachers perceive are realted to their implementation of Mastery Learning.

Table V is a summary of teacher's responses on the very constraining-to-very supportive scale. Listed vertically on the left are the locations of support that were investigated. The number represent percentages of teachers responding to each level of the scale.

.....

Table V should be inserted here.

.....

Correlation analysis between teacher's perception of location of support and degree of implementation found the following significant correlation coefficients at the .10 level.

.....

Table VI should be inserted here.

.....

Again, the first number for each entry represents the correlation coefficient and the second number represents the probability level. The correlation analysis appears to indicate that perceived Mastery Learning Project support is positively related to the degree of implementation of summative evaluation items. Perceived project support is also positively correlated to various elements of building formative evaluation. The current project staff has emphasized this in their efforts and it appears it has paid off. The only other significant positive relationships have to do with perceived other teacher's support in building formative evaluations.

As indicated in Table V, about 56% of the teachers

TABLE V

Location of Support	Very Supportive	Moderately Supportive	Neu.	Moderately Constraining	Very Constraining
Current Mastery Learning Project staff	57.5%	10%	32.5%	0%	0%
Other teachers in department	23.1	20.5	46.2	10.3	0
Other teachers in the community college	7.7	30.8	53.8	7.7	0
Department Chairperson	25.7	25.7	45.7	0	2.9
Others Administration	28.2	25.6	41.0	2.6	2.6
Mastery Learning coordinators	64.7	17.6	17.6	0	0
Mastery Learning managers	55.9	14.7	17.6	2.9	8.8

TABLE VI

Location of Support

Degree of Implementation	Current Mastery Learning Project Staff	Other Teachers in the Department
I. Summative Evaluation		
(D.) Test Items	.33 .038	
II. Formative Evaluation		
(C1.) Select Cells	.41 .019	
(C2.) Prerequisites	.40 .015	.43 .009
(D.) Test Items	.35 .032	

have been very pleased with the type of support provided by the Mastery Learning Manager. However, many teachers expressed concern related to this position. Some said that difficulty in coping with an unsatisfactory manager has influenced some teachers to quit using Mastery Learning. Many teachers said their manager did not have a good grasp of the subject matter enough to be of much assistance. A number of teachers requested more to be done in the selection of managers to make sure they have a necessary knowledge and skills in the subject. Some teachers expressed a desire to have some input in the selection of the manager they are to receive. A few teachers said that it is too time consuming to train new managers as a result of this demand. Finally, a few teachers expressed the concern that the managers are not efficiently used, and that they do not have enough to do simply because the work is not there.

As shown in Table V, about 58% of the teachers said that they think the Mastery Learning Project has been very supportive. Some teachers expressed a desire for -ore support from the Project in terms of workshops and incentives to improve Mastery Learning courses, and a desire for more feedack on the materials they have developed, or appreciation for the time and energy they have spent with Mastery learning.

The final area of this section contain comments about attitudes of teachers toward Mastery Learning. Most commented that other Mastery Learning teachers are very suportive for their efforts. However, non-mastery learning teachers were placed on a continuum ranging form neutral to negative in their attitude toward Mastery Learning. About 25% of the teachers interviewed described the attitudes of non-mastery learning teachers as negative. Various reasons were given for these negative attitudes: 1) the requirement that non-tenured teachers use Mastery Learning, 2) the fact that Mastery Learning has been pushed by some administrators, and

3) Some teachers believe Mastery Learning only teaches people how to take tests. A few teachers suggested that the only way to work with the negative attitudes of these teachers is through one-to-one contacts between people who are committed to Mastery Learning and these teachers. They said the statistics reporting success that the Mastery Learning Project distributes do not help to change the attitudes of these teachers.

DISCUSSION

The purpose of this study was to investige the nature and degree of variations in implementation of Mastery Learning and the reasons for why particular modifications have been made. One among the most significant findings is that there are some strong correlations between the degree of implementation of elements of the summative evaluation component and teachers' perceptions of student achievement in "learning-how-to-learn." In this area further study is needed to relate the current, more traditional measures of student achievement that CCC uses (student grades and attrition) and the degree of implementation of various components. Study of these relationships and further study of less traditional measures of student achievement is needed to determine the degree that actual and perceived student achievement influence the degree of implementation of Mastery Learning.

The study of other reasons why particular modifications were made have provided some realtionships that may be significant. However, the data analysis indicates that no overall conclusions can be drawn concerning the relationships between degree of implementation and the variables of teacher's experience, views on teaching and learning, perceived relative advantage, perceived difficulty to use, and perceived environment support. Some of these corrolations do indicate areas of further study and potential modification that the Mastery Learning Project may consider in its attempt to institutionalize

Mastery Learning. .

Some recommendations will now be made in point form.

1. Grading and summative evaluation - A significant number of teachers are not currently, and nver will be committed, to the idea of that summative tests should be the sole source for a grade in a course. They think it creates too much pressure and anxiety for students, that it is not enough input for a fair grade, and that some things students do in course-work cannot be tested but should be graded. Rather than to insist these teachers conform to the model, it is recommended that the project works with these teachers to ensure building in the principles of;

    1) non-evaluative feedback,
    2) evaluation that builds self-confidence,
    3) time to learn that is free from evaluation,
    4) the need for corrective learning.

2. Mastery Learning managers - A strengthened relationship between the Comprehensive Employment and Training Office (CETA) and the Project might be helpful. Perhaps teachers could have more input in who they hire by being able to interview two or three candidates and hiring one. Perhaps CETA could help in working toward nine-month employment periods for these people so teachers do not have to train twice in one nine-month period. Establishing a common training program for managers at a given campus at the beginning of the term conducted by coordinators would provide relief and support for teachers. Teachers need to be informed of and given more responsibility in the supervision of these managers.

3. Corrective learning - One of the most important claims of Mastery Learning is the impact of alternate forms of corrective learning. Teachers expressed belief in this, but they indicate a need for more time and support in developing correctives. One department has worked together to establish a lab for students where they can go for tutoring, formative retakes, PLATO, etc. Perhaps the project could work with other

departments to establish labs staffed by teachers and managers, and develop additional correctives. Teachers need the support of workshop time, release time, individual assistance, and help in finding materials. Teachers have not found good ways to use peer groups for correctives. Research has shown over and over that peer groups are extremely influential in students' development at the college level. A core of people committed to working out the problems for this method at the community college should gather to work this out.

4. English teachers - Many teachers need to be given some unique models that incorporate the general principles of Mastery Learning in new structures that would serve their needs better. Considering first drafts of papers as a formative evaluation, and the final draft as a retake is one of examples.

5. Use fo taxonomies of educational objectives and learning tasks - teachers have stopped using the taxonomies in their course planning. It is suggested that the principles behind the taxonomies be encouraged, rahter that strict adherence to the taxonomies. For Bloom's Taxonomy of Educational Objectives some of the most important principles that may need to be re-empahsized for teachers are; 1) the need for both comprehension and application kinds fo objectives and activities foroptimal learning, and 2) the need for analysis objectives and activities to develop critical thinking in students.

Any educational innovation will be modified according to teachers' own conditions once it is implemented in the actual school environment. The modification might be necessary to adjust the standard strategies to specific teaching condition. However, the point is to distinguish which modifications are to improve the outcome of the innovation or reduce the effectiveness of the innovation. The further research should be done regarding to this point.

Appendix

Summary of Teacher Comments to Other Issues

Interview Format for Mastery Learning Survey

References

Summary of Teacher Comments to Other Issues

This summary is a compilation of major areas of teacher comments to the final open ended question eliciting any additional comments about Mastery Learning. Included within this section were comments teachers made at other points in the interview that did not closely relate to that point of the interview. These comments are condensed into four areas: 1) student population characteristics and assumptions Mastery Learning makes, 2) time and administrative requirements of Mastery Learning, 3) general comments about Mastery Learning, and 4) Mastery Learning in English writing courses.

Several teachers described some of the characteristics of the population of students to show some of the difficulties they have implementing Mastery Learning. Some teachers indicated that on any given day only about two thirds of the class will attend the session and, of that two thirds, more than half will arrive late. Some teachers indicated that a significant number of student attend only because they qualify for Basic Educational Opportunity Grant (BEOG) money, and that they drop out after they receive their alloted BEOG money for that term. One teacher indicated that he lost 75% of his current class before the end of the course because it had an unusually high number of BEOG students. Their comments were usually made in the context of a belief that the Mastery Learning strategy works well if there is regular student attendance, promptness, and cooperation. Some teachers indicated that Mastery Learning assumes: 1) students are motivated, and 2) students can read, write, and speak well. These teachers believe that Mastery Learning does not motivate students directly nor that it improves retention. Some teachers indicated that the path of least resistance in this situation is to resort to the traditional lecture approach because then they do not have to worry about students missing classes and tests. Conversely, the majority of teachers said that Mastery Learning is the best strategy for this situation, that it helps teachers not to teach above the students.

A number of teachers expressed concerns about the time and administrative demands of Mastery Learning. Several teachers said the initial development of taxonomies of objectives for their courses, and the corresponding tests are extremely demanding and time consuming tasks. One teacher said that if the material is developed then she will implement it. As mentioned above, several teachers commented on the excessive class time demanded for testing. Some said record keeping and paper work takes too much time.

A large majority of teachers interviewed expressed continued commitment to Mastery Learning even given the problems. The general comments about Mastery Learning reflect this commitment. Several teachers commented that both the use of objectives and use of the Mastery Learning model has helped them to structure their courses, weed out extraneous material, and give better feedback to students. One teacher said Mastery Learning has helped students to manage their time, develop self-discipline, and work toward goals. Many teachers said that the more they use Mastery Learning, the easier it is to use.

Finally, a number of teachers interviewed were English teachers. These teachers expressed concern about adopting Mastery Learning to writing courses. They said testing gets in the way of writing as much as possible. They indicated the goals of a writing course prevent development of the course using Mastery Learning strategies. They indicated that their is no way to use a test to assess creativity. Some of these teachers have modified Mastery Learning to fit their course. Others are looking for assistance.

INTERVIEW FORMAT FOR MASTERY LEARNING SURVEY

Introduction

We are working for the Mastery Learning Project. Dr. Rocco Caponigri, the Project Director, has asked us to do some interviewing to determine what aspects of mastery learning have been useful to you and what aspects have needed to be modified. We would also like to find out some of the reasons for why teachers adopt, modify, or discontinue using different parts of the mastery learning model.

We are in the process of interviewing every teacher who has gone through a mastery learning workshop and others who may not have attended one of the workshops, yet use mastery learning strategies in their classrooms. We hope the results of these interviews will be useful to Dr. Caponigri, and the teachers of the community colleges who wish to incorporate mastery learning strategies into their teaching. Your individual interview responses will be seen only by mastery learning project staff.

1. Name _____ Date _____

2. Department _____ Campus _____

3. Courses you teach

_____

_____

4. Years of teaching experience

College _____ years

High School _____ years

Others _____ years

(Specify) _____

Views on Teaching and Learning Principles

I would like to give you a series of specific statements different teachers might make to represent a point of view about teaching and learning strategies. After I give you each statement, I would like you to specify where you would place yourself on the following scale in relation to each statement. (Give the teacher a card with the scale printed on it, explain the scale, and elicit a response to each statement one-by-one).

1	2	3	4	5
Strongly disagree	disagree	undecided	agree	strongly agree

5. Most people can learn anything at any stage.
_____ (number rating)

6. Too much guidance in instruction can destroy a student's ability to deduce important concepts in a subject.
_____ (number rating)

7. Before we can teach adequately, we must assess a student's prerequisite skills.
_____ (number rating)

8. One of the best ways to teach a concept is by helping students to "discover" the concept through inquiry.
_____ (number rating)

9. The primary emphasis of instruction should be teaching students how to learn a particular subject rather than what they should learn.
_____ (number rating)

10. Students need specific feedback continuously in the learning process.
_____ (number rating)

11. Learning is best accomplished by the teacher rewarding, shaping, and modeling behavior.
_____ (number rating)

12. Good teaching helps a student to move from a need for extrinsic rewards to dependence on intrinsic rewards.
_____ (number rating)

13. Tests do not really show how much a student has learned.
_____ (number rating)

14. Testing can be used as an aid to students in learning.
_____ (number rating)

15. Experience is an essential part of school learning.
_____ (number rating)

16. Providing remedial instruction is the responsibility of every teacher in every class.
_____ (number rating)

17. Organizing instruction using objectives that reflect a strong sequential approach stifles creativity.
_____ (number rating)

18. Students can learn as much from their peers as from their teacher.
_____ (number rating)

19. Effective teaching can help almost all students entering a course to master the material.
_____ (number rating)

20. Effective teaching requires the use of varied instructional materials and methods to meet individual needs.
_____ (number rating)

21. No matter what the teacher does, a number of students will not perform as well as others in the class.
_____ (number rating)

22. Good instruction should include setting clear and attainable goals for students.
_____ (number rating)

23. Strong sequential instruction is appropriate for most courses.
_____ (number rating)

24. Grading should be used as a motivator throughout a course.
_____ (number rating)

25. Students must learn how to apply the subject in different situations before they have mastered the material.
_____ (number rating)

26. It is important to develop behavioral objectives for every specific skill and knowledge a teacher wants to teach.
_____ (number rating)

27. One of the most important things to do in teaching is to provide an overall view of the content and let the students fill in with facts they know or learn.
_____ (number rating)

28. First of all, in what courses have you implemented mastery learning strategies? Please specify course(s) you implemented during the workshop (mark these with a W).

_____

_____

_____

To look at this area further I would like to show you one card defining each mastery learning component. Hopefully we both can use these definitions as a reference to make sure we are talking about the same thing. The different components we have defined are:

1) Planning course objectives and summative evaluation

2) Planning formative evaluation

3) Planning corrective learning procedures

4) Implementation

I would like to look at the Planning Course Objectives and Summative Evaluation component first. Our definition of this component is as follows: (Show teacher the card and read it aloud, ask if teacher has any questions)

> Planning of Course Objectives and Summative Evaluation includes:
>
> A. An outline of the content of the course is developed and listed vertically down the side of a page.
>
> B. Four-to-six major objectives are listed horizontally across the top of a page representing at least the first four levels of the Taxonomy of Educational Objectives: knowledge, comprehension, application, and analysis.
>
> C. A sample of cells from the table of specifications are chosen for writing items.
>
> D. Test items are written for each of the sampled cells and judged to have content validity by a peer.

29. Please use the following scale to indicate the degree to which you use this this component in your planning of mastery learning.

1	2	3	4	5
Never	Almost Never	Sometimes	Almost Always	Always

_____ A (Number rating)

_____ B (Number rating)

_____ C (Number rating)

_____ D (Number rating)

30. (If modified) which part of this component did you modify?

_____ A.

_____ B.

_____ C.

_____ D.

31. How did you modify this part of the component?

A. _____

B. _____

C. _____

D. _____

Next, I would like to look at the Planning of Formative Evaluation component. Our definition of this component is as follows: (show the teacher the card, read it aloud, and ask if the teacher has any questions)

> The Planning of Formative Evaluation component includes:
>
> A. The course is divided into small teachable units (approximately one or two weeks in length).
>
> B. The hierarchy of learning tasks are listed horizontally across the top of a page for each unit to include: (1) Knowledge of terms, (2) Knowledge of facts, (3) Knowledge of rules and principles, (4) Skills in using processes and procedures, (5) Ability to make applications.
>
> C. The formative test "table of specifications" is completed.
>
> 1. The appropriate columns of each learning task is filled in with subject matter elements and details.
>
> 2. Connecting lines are drawn where appropriate to represent subject matter elements at one learning task level that are prerequisite for elements at a more complex learning task level.
>
> D. Test items are written for each cell containing subject-matter elements for each unit.

32. Please use the "Never-Always" scale to indicate the degree to which you use this component in your planning of mastery learning:

_____ A. (Number rating)

_____ B. (Number rating)

_____ C_1 (Number rating)

_____ C_2 (Number rating)

_____ D. (Number rating)

33. (If modified) which part of this component did you modify?

_____ A.

_____ B.

_____ C.1

_____ C.2

_____ D.

34. How did you modify this part of the component?

A. _____

B. _____

C.1_____

C.2_____

D. _____

The next component of mastery learning is Planning Corrective Learning Procedures. Our definition of this component is as follows: (Show teacher the card, read it aloud, ask if the teacher has any questions)

> Planning Corrective Learning Procedures include:
>
> A. Varied methods and materials are included from which the student can choose for mastering content of incorrect items.
>
> B. An alternate but parallel form of the formative test is developed for students to take after completion of corrective learning procedures.

35. Please use the "Never-Always" scale to indicate the degree to which you use this component in your planning of mastery learning.

_____ A (Number rating)

_____ B (Number rating)

36. (If modified) which part of this component did you modify?

_____ A.

_____ B.

37. How did you modify this part of the component?

A. _____

B. _____

The final component of mastery learning is Implementation. Our definition of this component is as follows: (Show teacher the card, read it aloud, ask if the teacher has any questions).

> Implementation includes:
>
> A. An orientation is conducted to acquaint students with mastery learning concepts developing the belief that they can learn.
>
> B. A cycle of group based instruction, formative evaluation, confirmation of mastery or individual corrective learning procedures is repeated for each unit of the course.
>
> C. The final examination is given and the grade is based on previously established criterion scores for mastery of the course.

38. Please use the "Never-Always" scale to indicate the degree to which you use this component in your planning of mastery learning.

_____A (Number rating)

_____B (Number rating)

_____C (Number rating)

39. (If modified) which part of this component did you modify?

_____A.

_____B.

_____C.

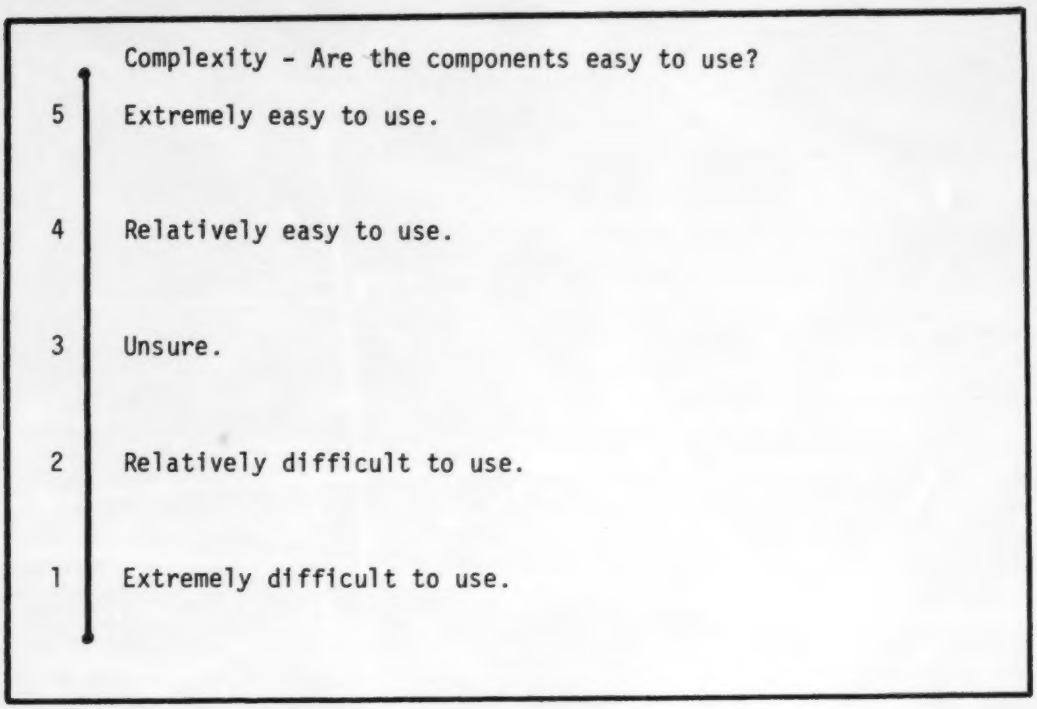
40. How did you modify this part of the component?

A._____

B._____

C._____

The second scale is also complexity of the component. Are the components easy to use? (Describe and place this scale vertically in front of the teacher. Ask the teacher to place each component card next to the appropriate rating for that component.)



56-59. Planning Course Objectives and Summative Evaluation (Number Rating)

_____A. _____B. _____C. _____D.

60-64. Planning Formative Evaluation (Number Rating)

_____A. _____B. _____C_1 _____C_2 _____D.

65-66. Planning Corrective Learning Procedures (Number Rating)

_____A. _____B.

67-69. Implementation (Number Rating)

_____A. _____B. _____C.

Please rate each of the following two statements using this scale. (Give the teacher a card with the scale printed on it)

1	2	3	4	5
Strongly disagree	disagree	undecided	agree	strongly agree

70. Use of mastery learning strategies has helped my students to "learn-how-to-learn."
_____ (Number rating)

71. Use of mastery learning strategies has helped my students to develop confidence in their ability to learn.
_____ (Number rating)

SUPPORTS AND CONSTRAINTS TO IMPLEMENTATION

The last part of this interview is to determine your perceptions of those people or things that have been supportive of your efforts to implement mastery learning strategies.

72. First of all, what workshop did you attend?

_____A. Bloom

_____B. Jones

_____C. Caponigri (Specify 1 or 2)

1. First workshop - summer of 1978
2. Second workshop - fall of 1978

_____D. Other (Specify) _____ When? _____

_____E. None

73. Did you complete this workshop?

_____A. Yes

_____B. No

I would like to determine your perceptions of who or what has been (or was) supportive in your efforts to implement mastery learning strategies. For example, has your department chairman been a supportive or constraining factor in your efforts to implement mastery learning strategies? I will list one-by-one various people and ask you to assess the degree to which they have been supportive of your efforts. Again I will ask you to use a scale to give your perceptions. (Give the teachers the card with the following scale).

1	2	3	4	5
Very constraining to my efforts	Moderately constraining to my efforts	Neutral	Moderately supportive of my efforts	Very supportive of my efforts

74. Current mastery learning project staff
_____(Number rating)

75. Other teachers in the department
_____ (Number rating)

76. Other teachers in the community college
_____ (Number rating)

77. Department chairman
_____ (Number rating)

78. Other administrators
_____ (Number rating)

79. Mastery learning coordinators
_____ (Number rating)

80. Mastery learning managers
_____ (Number rating)

81. Do you have any specific suggestions for how the community college and the mastery learning project can be more supportive of your efforts in mastery learning?

_____

_____

_____

82. Are you still using mastery learning strategies in your classes?

_____A. Yes

_____B. No

83. Do you plan to use mastery learning strategies in the future?

_____A. Yes

_____B. No

84. (If answered "no" to above) Can you elaborate any further than what you already stated in this interview to help us understand what caused you to stop using mastery learning strategies?

_____

_____

85. Do you have any other concerns, comments, or questions about mastery learning strategies or this interview?

_____

_____

_____

References

Brunner, J. S. The process of education. New York: Vintage Books, 1960.

Gagne, Robert M. The conditions of learning. New York: Holt, Rinehart, and Winston, 1970.

Guida, T. V. Final evaluation of the Mastery Learning Project for the City College of Chicago: 1977-78 school year. Unpublished Report, 1978.

Jones E. L. Gordon, H. A. Schechtman, G. L. Mastery Learning: A strategy for academic success in a community college. Topical Paper No.53 ERIC Clearing House for Junior Colleges, University of California, Los Angeles, 1975.

Guskey, T. R., and Monsaas, J. A. Final evaluation of the Mastery Learning Project for the City Colleges of Chicago: 1976-1977 school year. Unpublished Report, 1977.

Rogers, E. M., and Schoemaker, F. F. Communication of innovations: A cross cultural approach. New York: Free Press, 1971.

Rogers, E. M. Diffusion of innovations. New York: Free Press, 1962.

Skinner, B. F. Beyond freedom and dignity. New York: Boston Books, 1971.

UNIVERSITY OF CALIFORNIA
ERIC CLEARINGHOUSE FOR
JUNIOR COLLEGES
96 POWELL LIBRARY BUILDING
LOS ANGELES, CALIFORNIA 90024

DEC 12 1980